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AUTHOR	Strother, Judith B.
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ABSTRACT

This paper presents a case study of a Web-based English language training program in the field of Aviation. Virtual Languages, Inc., (VL) of Boca Raton, Florida, develops and delivers distance learning courses that teach English as a Second Language (ESL) within an English for Specific Purposes (ESP) framework. This allows learners to improve their proficiency in English while developing the field-specific language they need in order to perform their jobs. The two main ESP areas of VL courses are Business English and Aviation English, the latter of which is the focus of this paper. (Contains 13 references.) (AEF)

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Localization vs. Internationalization: E-Learning Programs for the Aviation Industry

Judith B. Strother

ED 479 613

Introduction

An increasing amount of research is being done on the topic of internationalization and localization of communication products. However, much of the focus is on the world of Information Technology. While that is certainly critical, especially in this era of web-based communication, the consideration of character sets supported by a particular operating system and expansion of text due to translation issues are not the only issues. In many cases, the content of the communication itself must be localized because of such elements as varying legal requirements and regulations, and linguistic elements such as dialectal variations.

E-learning programs – especially those that are designed to be delivered around the world – have their own set of issues with localization. This paper presents a case study of a web-based English language training program in the field of Aviation.

English is said to be the *lingua franca* of the world of aviation because it is supposed to be used by pilot and air traffic controllers the world over. However, the Aviation English used in Europe is not the Aviation English used in the U.S. and neither of those may be the version of English used in other parts of the world. While there are continuing attempts by international regulatory bodies to mandate the use of English and then standardize the English used in aviation throughout the world, the fact remains that differing versions are commonly used in different locales.

What effect does this have on a product whose goal is to teach a standardized version of Aviation English? How does a training program cope with the international need for standardization and the reality that localization is the only way to deliver the significant parts of product?

Case Study – the Aviation English Product

Virtual Languages, Inc., (VL) of Boca Raton, Florida, develops and delivers distance-learning courses that teach English as a Second Language (ESL) within an English for Specific Purposes (ESP) framework. This allows learners to improve their proficiency in English while developing the field-specific language they need in order to perform their jobs. The two main ESP areas of VL courses are Business English and Aviation English, the latter of which is the focus of this paper. Virtual Language's Aviation English courses are based around content-rich themes such as Introduction to Aviation, Aviation Meteorology, Aviation Physiology and Medicine, and Aviation History.

All courses are available at five proficiency levels and focus on the primary language skill areas. Each course has several sections, all based on a content-specific Reading Selection. Vocabulary development, reading comprehension practice, and grammar activities (at the lower levels) are part of each lesson. In addition, a crucial part of each lesson involves two different kinds of listening activities. One provides a variety of listening activities, based on the content of the Reading Selection. The other activities are based on actual ground-to-air communication events. At the lower levels, there are activities that prepare the learner for pilot/ATC communication using standard phraseology and at the upper levels, actual airport tower tapes are the basis for the listening activities to give the learners practice with authentic language delivered in actual context.

The listening section of the Aviation English course, based on radiotelephony phraseology, provides the greatest localization challenge for the global delivery of the web-based product. How can we decide which version of pilot/ATC communication to use: FAA? ICAO? or a real (but sometimes nonstandard) version of one or both?

Localization versus Internationalization

While various organizations use these terms differently, this paper uses the definitions adopted by LISA (Localisation Industry Standards Association), using LEIT (LISA Education Initiative Taskforce) guidelines (LISA 2002).

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Localization involves taking a product and making it linguistically and culturally appropriate to the target locale (country/region and language) where it will be used and sold. A similar definition for localization is the process of creating or adapting a product to a specific locale, i.e., to the language, cultural context, conventions and market requirements of a specific target market (Localization Institute 2001).

Internationalization is the process of generalizing a product so that it can handle multiple languages and cultural conventions without the need to re-design. This process is particularly relevant during the program and product development phases as well as relevant to decisions made about the documentation to accompany a product. (LISA)

In addition to localization and internationalization, globalization addresses the business issues associated with taking a product global. This involves integrating localization throughout a company, after proper internationalization and product design, as well as marketing, sales, and support in the world market. LISA also uses a new acronym, GIL, to describe the combination of Globalization, Internationalization, and Localization. GIL refers to all aspects of the process of taking products to an international audience.

Localization and Internationalization are the two concepts that form the basis for this discussion since they are relevant to the development of the product, even though the product itself (Aviation English course) is only delivered in English. Other globalization issues, such as culturally translated marketing materials, are not within the purview of this paper.

The Problem

While international regulatory bodies continually attempt to standardize the English used in aviation throughout the world, different versions are commonly used in different locales. How does a web-based e-learning program cope with the international need for standardization and the reality that localization is the only way to sell (and thus deliver) the product? This complex process is discussed, including identification of the parts that could be internationalized (usable for anyone in any country) versus those that had to be localized for different world regions.

Aviation English

While English is assumed to be the international language of aviation, in fact, there is not an enforceable requirement for English to be used in all pilot-ATC communication nor is there a minimum or consistently measurable standard of English proficiency for pilots or controllers. Even where English is used as the language of communication, there is no agreement on which form of English (that is, *whose* English) is to be used as the standard.

Proficiency Issues

A great variety of cross-linguistic interactions between pilots and controllers is possible. Consider these few examples:

- both native English speakers but from different dialectal areas (e.g., a U.S. pilot flying into Australia)
- a non-native speaking pilot / a native speaking controller (e.g., a Chinese pilot flying into the U.S.)
- a native English speaking pilot / a non-native speaking controller (e.g., an Irish pilot flying into Venezuela)
- a non-native speaking pilot / a non-native speaking controller in another country, where both speak English as the common language. (e.g., a French pilot flying into Japan)

In the United States, the Federal Aviation Administration (FAA) requires flight certificate applicants to demonstrate proficiency in English, yet there are no assessment standards given to measure their concept of proficiency. Current FAA regulations require pilots to "be able to read, write, speak, and understand the English language." (FAA)

In most of the rest of the world, the International Civil Aviation Organization (ICAO) sets the standard for pilot/ATC communication. In a move to get closer to requiring English as the international language of

aviation, ICAO, the UN-affiliated body responsible for setting safety standards for air transport, recommends that control towers and commercial aviation use English, but it is only a recommendation and no proficiency standards have been set.

Standardization Issues

There is a significant body of evidence that confirms that miscommunication has caused numerous accidents and near misses around the world, especially miscommunication between native speakers and nonnative speakers either as pilots or in the control tower without adequate command of English.

In fact, the worst aviation disaster in history resulted from a simple communication error on March 27, 1977, in Tenerife in the Canary Islands. When the pilot of a KLM 747 started his take-off roll down a foggy runway, he radioed the tower "We are now at take-off." The controller misunderstood this ambiguous statement and incorrectly interpreted it to mean "We are at our take-off position and holding." After all, that was what the tower had instructed the KLM pilot to do. Therefore, the controller did not warn the Dutch pilot that a Pan American 747, which was invisible in the thick fog, was still on the runway. The Pam American crew saw the lights from the KLM plane approaching them and made a desperate but unsuccessful attempt to clear the runway before the now, barely-airborne KLM plane sliced through them, killing 583 passengers on the two planes (Cushing).

The issue of standardization of language, specifically ATC phraseology, within the aviation industry is one that has been debated for a number of years. Barbara Kanki, a NASA Ames human factors research psychologist and expert in flight-deck communication problems points out that several groups are studying the disparities between worldwide ATC systems. One of their goals is to examine the differences between ICAO and FAA phraseology and to show what is equal to what. "These are gigantic topics and there is no right or wrong. Each country has its own glossary and we are trying to find a variability that is acceptable" (Carlisle 2001)

While the FAA is primarily a U.S. standard, a number of countries, such as Mexico, which routinely fly into the U.S., also use a version of FAA phraseology. As pointed out earlier, ICAO sets the phraseology for most of the rest of the world. ICAO, through its PRICE (Proficiency Requirements in Common English) Group, has taken steps to standardize the English used in all ground-to-air communication (Matthews, 2001). The recommendations for standardization can only be implemented after all 187 member states adopt them. This is not expected to happen before 2008. Many countries are hostile at any attempt to impose English, even when language diversity is demonstrably a safety issue. (Education Guardian, 2001).

ICAO vs. FAA: Examples of Phraseology Differences

The variations between ICAO and FAA standard phraseologies are numerous (Simon 1998). In fact, a number of organizations have published and continually update their lists of these differences in an attempt to keep their pilots and controllers aware of the phraseology variations they may encounter on international flights.. (See, for example, *Glossary for Pilots and Air Traffic Services Personnel*, published by Transport Canada).

The following are just a few of the differences in standard phraseology between these two aviation regulatory organizations (Pilot's Reference 1999):

ICAO: back track
FAA taxi back

ICAO: clear of traffic
FAA: traffic no factor

ICAO: line up and hold
FAA: taxi into position and hold

ICAO: passing

FAA: leaving

ICAO: Report your heading and level
FAA: Say heading and altitude

These differences represent localization issues that must be dealt with by any company that intends to deliver accurate pilot/ATC communication training.

Again, think about the multiple possibilities of communication among pilots and air traffic controllers. Certainly, English language proficiency is a major issue, but so is the need for all of these communicators to be using standard phraseology. With all of the possible international interactions, it is not difficult to understand the need for standardization of Aviation English and the need for rigid proficiency requirements for pilots and controllers (see, e.g., Matthews 1999 and 2001; University of Redlands, 2001). Since a company that is developing Aviation English cannot control international proficiency and standardization issues, it has to deal with the elements it can control.

The Course: Whose English?
Virtual Languages' main issue, therefore, deals with the question: When an aviation training program or aeronautical university recognizes the need for Aviation English training, exactly which form of English should be taught? Can a web-based training program truly be internationalized for delivery all over the world? How can a company adapt web-based training for localized requirements?

That is the situation that faced Virtual Languages when it began to develop its web-based Aviation English product for use all over the world.

Consultation with International Aviation Authorities

In the content design and review phases, Virtual Languages' content team had to determine the best strategy to deal with the diverse phraseology requirements in different locales. They researched regulations of each body, studied phraseology guidelines, examined areas of difference, and interviewed aviation professionals to get insight into phraseology variations and the use of nonstandard phraseology.

In a strong effort to develop the best possible ATC training segment, officers met with officials from both the FAA and ICAO, as well as several European ATC organizations such as Eurocontrol and Belgocontrol, to discuss strategies to handle the need for divergent ATC communication portions of the Aviation English course.

As a result of these discussions, Virtual Languages became strongly committed to developing a product that promotes ICAO standards for ground-to-air communication. However, this can be a difficult goal to achieve in the framework of an Aviation English training program. One issue is that ICAO standard phraseology is not usually taught in U.S. aviation training programs and is not used at U.S. airports, or in all other non-U.S. countries. The FAA sets the standards for the language used in U.S. controlled airspace; therefore, the company has to cope with this fact as a training issue for some customers.

The Solution
Which parts of the course can be internationalized, or delivered to all clients around the world without regional modifications? In fact, all parts of each course – Reading, vocabulary development, and content-based listening activities – except ATC listening – are appropriate for world-wide delivery. There is, however, the caveat that in the current product, VL uses a variety of American English speakers. An alternative version of the courses using British, Australian, Irish, and other non-American-English speakers is planned. The recorded sections include the text of the Reading Selection, key vocabulary words, and feedback for each question at the lower course levels, in addition to the listening activities.

How does the company handle the need for localization of the ATC sections of the course? In fact, our solution is to develop parallel training packages. Because the company's first potential clients were in the U.S. or Mexico, FAA-based ATC communication was used for the first courses developed. The ATC

portion of the courses are always based on actual ground-to-air communication, so tapes from the Miami Control Tower were used as the first set. The tapes were transcribed by pilots and the transcriptions were used as the basis for the listening activities. Thus, FAA standard phraseology is the basis for this version of the product.

Although the FAA sets the U.S. standard, we quickly learned that use of nonstandard phraseology is common in U.S.. That presented a new dilemma. We wanted pilots and controllers or aviation students to hear and practice real language in real contexts, so we needed to use tapes from airport control towers. When dealing with actual tapes, how do we handle nonstandard phraseology issues? To deal with nonstandard phraseology, in the feedback for each activity, information will be given about what the pilot or controller actually said, and then what should have been said using standard FAA phraseology.

The second set of courses will be offered with a variety of English accents (British and others) using tapes from European (or other appropriate) towers. Nonstandard communication will be handled in the same way, with the standard phraseology of ICAO used as the model.

The Future

Eventually, ICAO and FAA should come together on one standard phraseology for international aviation. In fact, Virtual Languages has been invited to participate in this ongoing discussions, next at a panel discussion at the Farnborough Air Show in England in July. If the current differences can be resolved through the standardization recommendations of international organizations, then a big step will have been made toward the internationalization of Aviation English training. When this occurs, most of the localization issues will disappear, at least insofar as terminology and phraseology are concerned. At that time, the main localization issues will be reduced to those of dialects, particularly accents, and colloquial or nonstandard use of the standard phraseology.

Until that day in the very far future, Virtual Languages will continue to wrestle with having to develop a web-based training product that is partially internationalized, but that has sections that are localized for specific clients around the world.

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